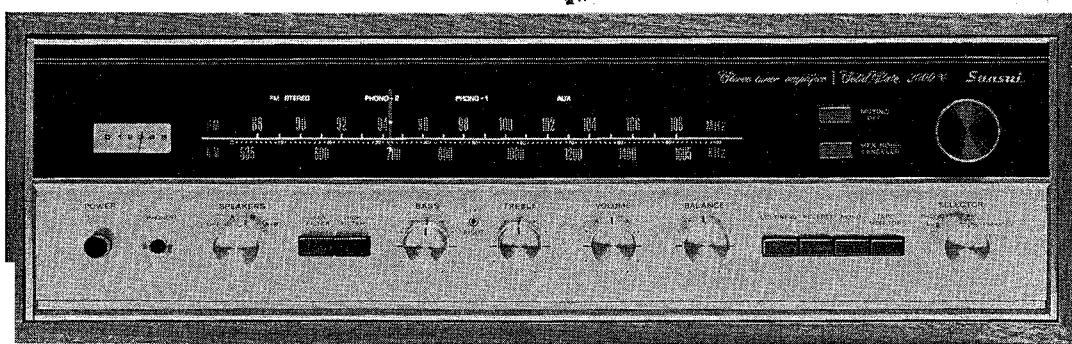


# SERVICE MANUAL

SOLID-STATE AM/FM STEREO TUNER AMPLIFIER

## SANSUI 2000 X



*Sansui*

SANSUI ELECTRIC COMPANY LIMITED

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# GENERAL TROUBLESHOOTING CHART

If the amplifier is otherwise operating satisfactorily, the more common causes of trouble may generally be attributed to the following:

1. Incorrect connections or loose terminal contacts. Check the speakers, record player, tape recorder, antenna and line cord.
2. Improper operation. Before operating any audio com-

ponent, be sure to read the manufacturer's instructions.

3. Improper location of audio components. The proper positioning of components, such as speakers and turntable, is vital to stereo.

4. Defective audio components.

The following are some other common causes of malfunction and what to do about them:

PROGRAM	SYMPTOM	PROBABLE CAUSE	WHAT TO DO
AM, FM or MPX reception	A. Constant or intermittent noise heard at times or in a certain area	<ul style="list-style-type: none"> <li>* Discharge or oscillation caused by electrical appliances, such as fluorescent lamp, TV set, D.C. motor, rectifier or oscillator</li> <li>* Natural phenomena, such as atmospherics, statics or thunderbolts</li> <li>* Insufficient antenna input due to ferroconcrete wall or long distance from the station</li> <li>* Wave interference from other electrical appliances</li> </ul>	<ul style="list-style-type: none"> <li>* Attach a noise limiter to the electrical appliance causing the noise, or attach it to the amplifier's power source</li> <li>* Install an outdoor antenna and ground the amplifier to raise the signal-to-noise ratio</li> <li>* Reverse the power cord plug-receptacle connections</li> <li>* If the noise occurs at a certain frequency, attach a wave trap to the ANT. input</li> <li>* Keep the set at a proper distance from other electrical appliances</li> </ul>
	B. The needle of the tuning meter does not move sharply	* Receiver is located in a weak signal area	* Place the set to receive maximum signal strength
	C. The zero point of the meter diverges much	* Regional difference in field intensity.	* The unit is not at fault
AM reception	A. Noise heard at a particular time of a day, in a certain area or over part of dial	* Due to the nature of AM broadcasts	<ul style="list-style-type: none"> <li>* Install the antenna for maximum antenna efficiency. See "ANTENNA" in the operating instructions</li> <li>* In some cases, the noise can be eliminated by grounding the amplifier or reversing the power cord plug-receptacle connections</li> </ul>
	B. High-frequency noise	<ul style="list-style-type: none"> <li>* Adjacent-channel interference or beat interference</li> <li>* TV set too close to audio system</li> </ul>	<ul style="list-style-type: none"> <li>* Although such noise cannot be eliminated by the amplifier, it is advisable to adjust the TREBLE control from midpoint to left and switch on the HIGH FILTER</li> <li>* Keep the TV set at a proper distance from the audio system</li> </ul>
FM reception	A. Noisy	<ul style="list-style-type: none"> <li>* Poor noise limiter effect or too low SN ratio due to insufficient antenna input</li> </ul> <p>Note: FM reception is affected considerably by transmission conditions of stations: power and antenna efficiency. As a result, you may receive one station quite well while receiving another station poorly</p>	<ul style="list-style-type: none"> <li>* Install the antenna (supplied) for maximum signal strength</li> <li>* If this does not prove effective, use an outdoor antenna designed exclusively for FM. When you use a TV antenna for both TV and FM with a splitter, make sure TV reception is not affected</li> <li>* An excessively long antenna may cause noise</li> </ul>

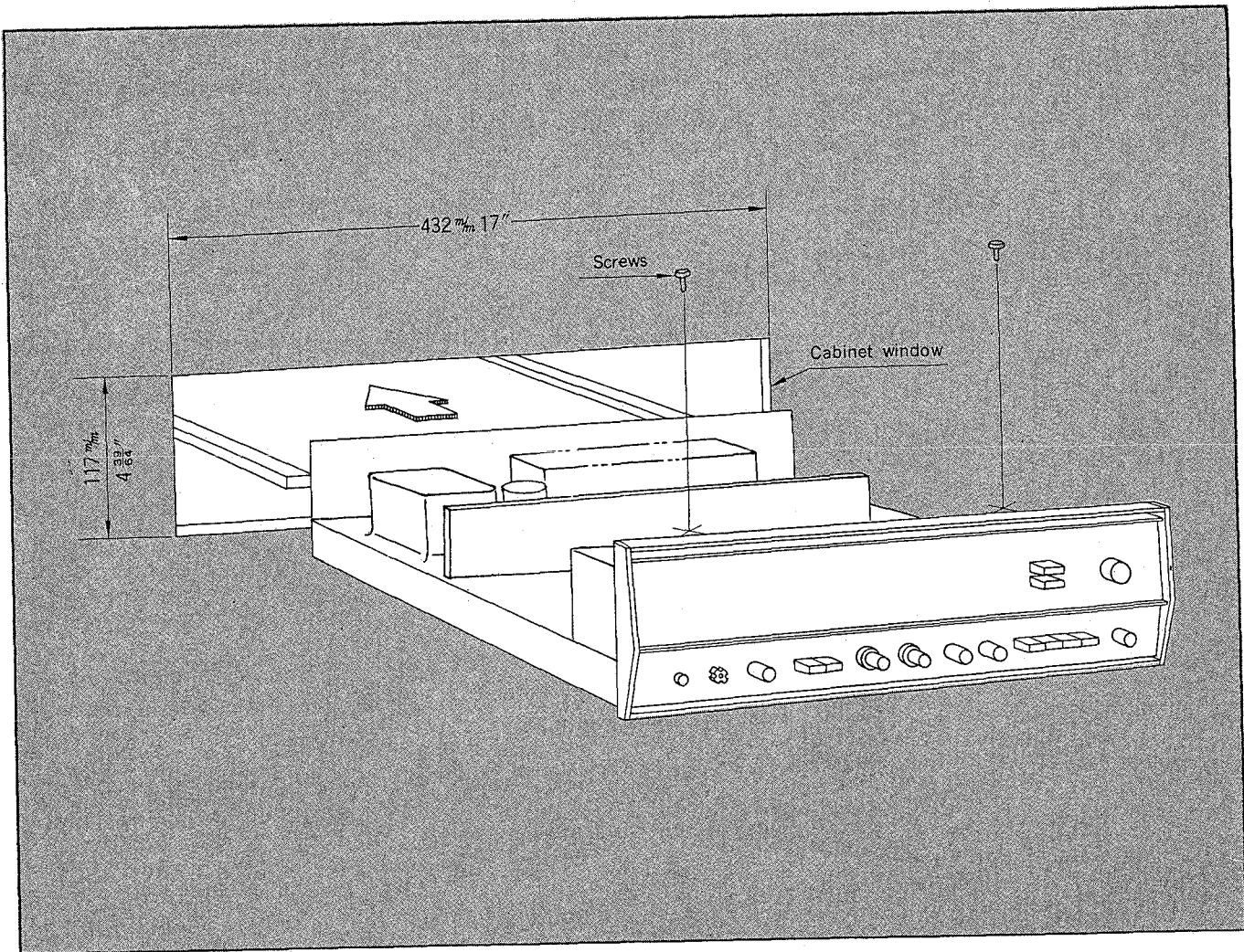
PROGRAM	SYMPTOM	PROBABLE CAUSE	WHAT TO DO
FM reception (cont'd)	B. A series of pops is heard	* Ignition noise caused by an automobile engine	* Install the antenna and its lead-in wire in proper distance from the road or raise the antenna input as described above
	C. Tuning noise between stations	* This results from the nature of the FM reception. As the station signal becomes weak, the noise limiter effect is decreased, and the amplification of the limiter, in turn, is enlarged, generating a noise	* Turn the muting on.
FM-MPX reception	A. Noise heard during FM-MPX reception while not heard during FM mono reception	* Weaker signal because the service area of the FM-MPX broadcast is only half that of the FM mono broadcast	* Install the antenna for maximum antenna input * Switch on the HIGH FILTER and/or turn the TREBLE control from midpoint, left
	B. Clearness of channel separation is decreased during reception	* Excess heat	* Circulation of air is important to the amplifier. Be sure that air is flowing under the amplifier
	C. The stereo indicator blinks on and off	* Interference	* The indicator is not at fault. Adjust VR <sub>401</sub>
	D. The stereo indicator blinks on and off even though stereo station is not received	* Interference	* The indicator is not at fault. Adjust VR <sub>401</sub>
Record playing or tape playback	A. Hum or howling	* Record player placed directly on speaker * Wire other than shielded wire used * Loose terminal contact * Shielded wire too close to line cord, fluorescent lamp or other electrical appliances * Nearby amateur radio station or TV transmission antenna	* Place a cushion between the player and the speaker box or place them away from each other * The connecting shielded wire should be as short as possible * Switch on the LOW FILTER and turn the BASS control from midpoint to left  * Consult the nearest Radio Regulatory Bureau
	B. Surface noise	* Worn or old record * Worn stylus * Stylus dusty * Improper stylus pressure * Worn playback head	* Switch on the HIGH FILTER and turn the TREBLE control from midpoint to left * Clean or replace the stylus * Replace the playback head.
All stereo programs	BALANCE control is not at midpoint when equal sound comes from left and right channels	* It is important to adjust for equal sound from both channels. It should not always be set to the midpoint	* Set the MONO switch to MONO and then set the BALANCE control to a position where equal sound comes from both channels

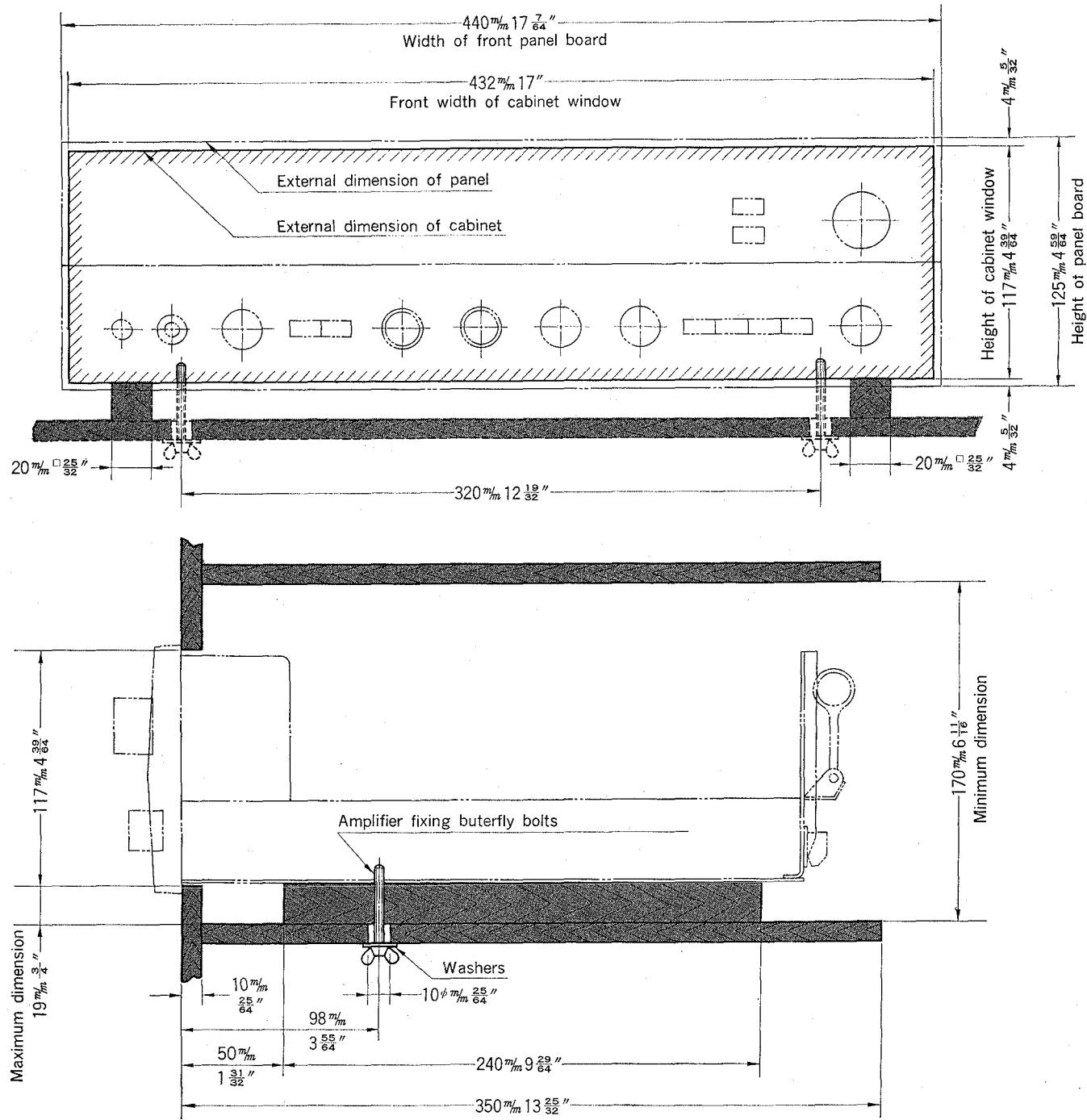
# CUSTOM MOUNTING

## How to install the amplifier in a wooden cabinet

1. Make a cabinet cutout of 432mm or 17" in width and 117mm or  $4\frac{39}{64}$ " in height.
2. Place two square pieces of wood (20×20×240mm or  $2\frac{5}{32}$ "× $2\frac{5}{32}$ "× $9\frac{29}{64}$ ") for supporting the amplifier in the bottom board of the cabinet.
3. Cut two holes for attachment bolts in the bottom board of the cabinet.
4. Remove the amplifier from the wood case (Refer to the section entitled "DISASSEMBLY PROCEDURE").
5. Place the amplifier in position through the cabinet cutout.
6. Make sure the amplifier is in position, then put the washers in butterfly bolts (4×40mm) and fix the amplifier to the cabinet with the butterfly bolts.

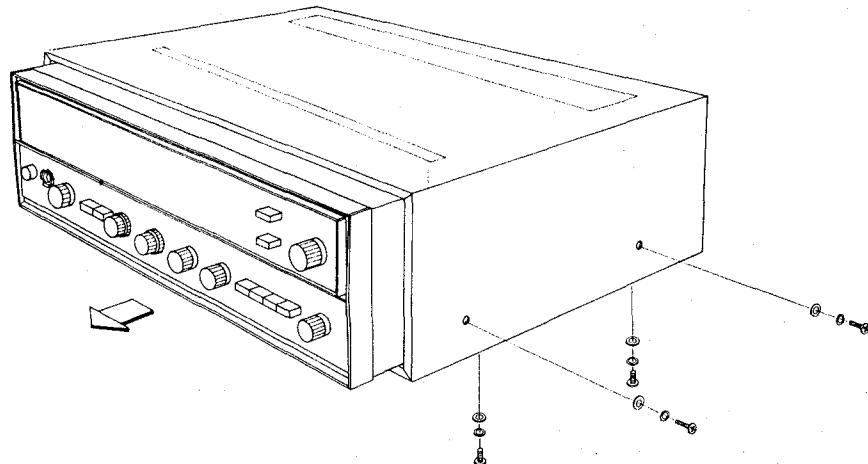
**Note:** When the amplifier is built into the custom cabinet, the wood case assembly including screws and washers is not used. Retain it for future use.



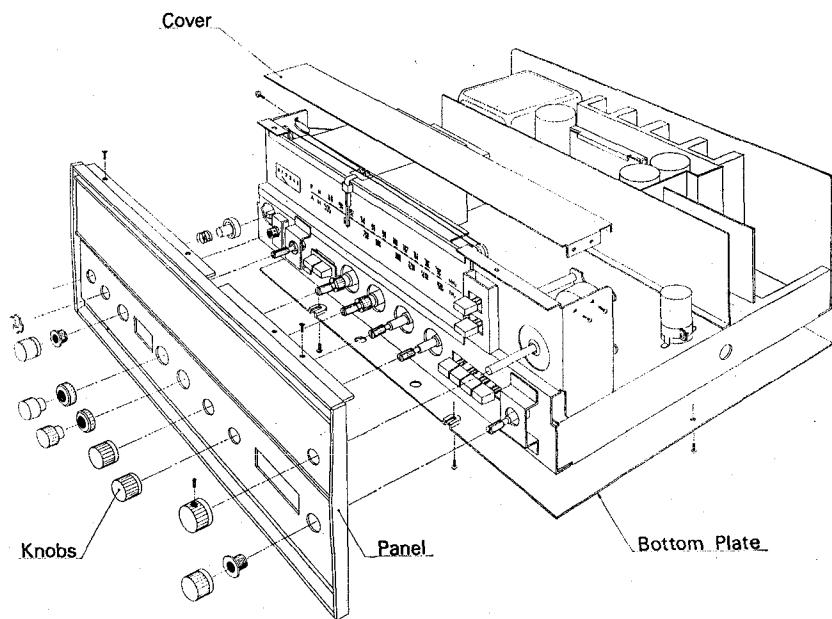


# DISASSEMBLY PROCEDURE

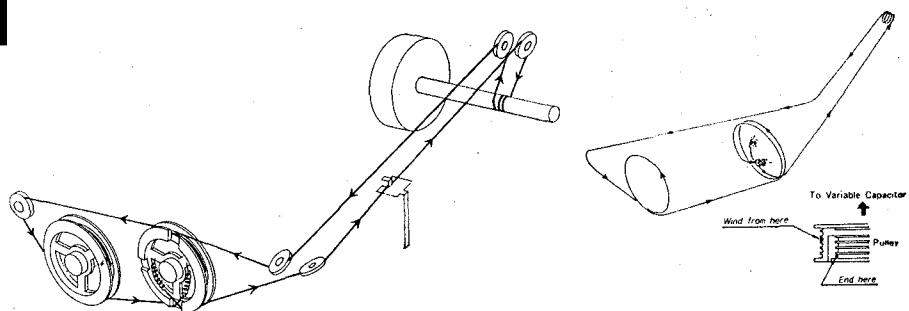
## REMOVING THE WOOD CASE



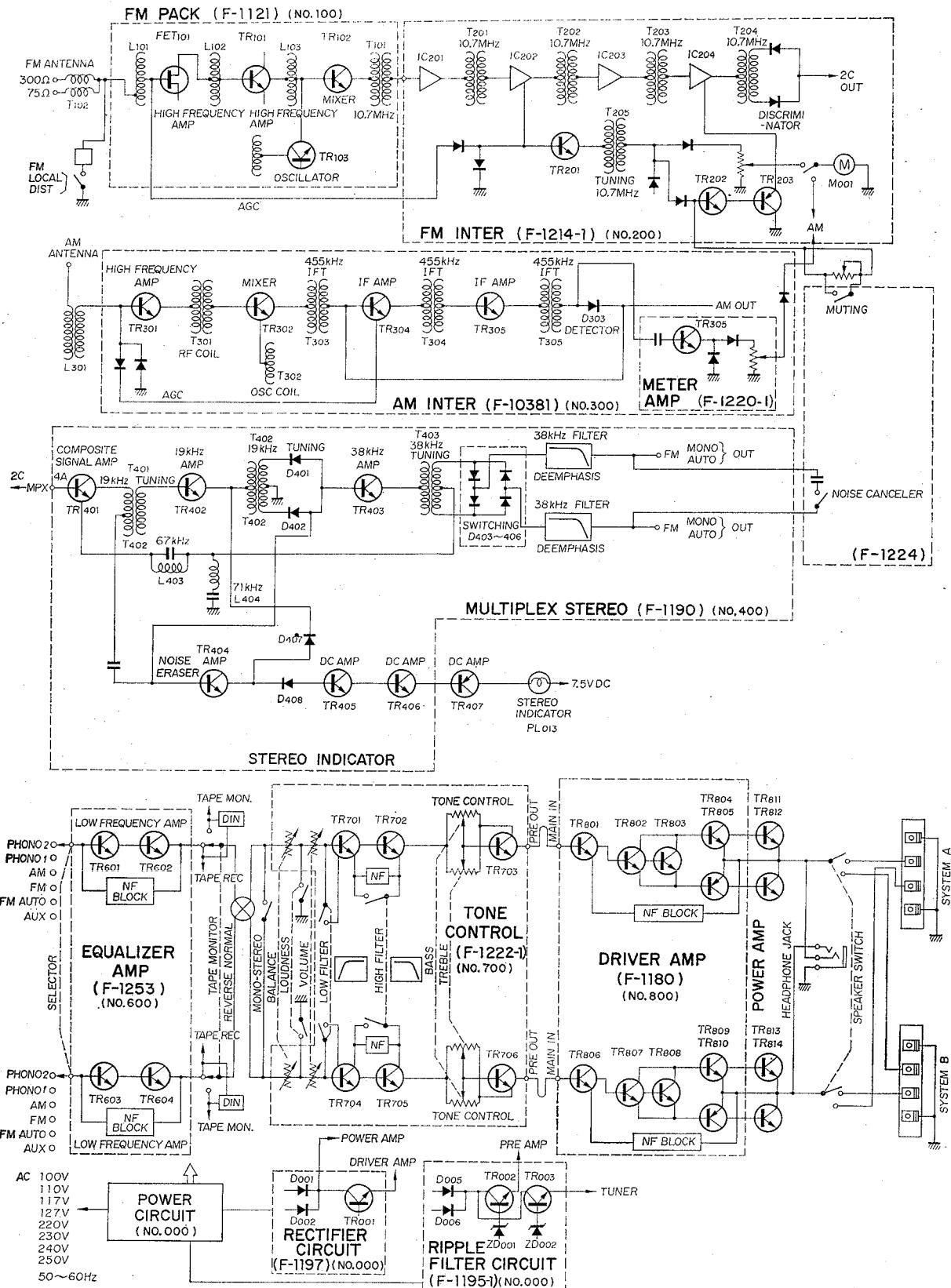
## REMOVING THE FRONT PANEL AND BOTTOM PLATE



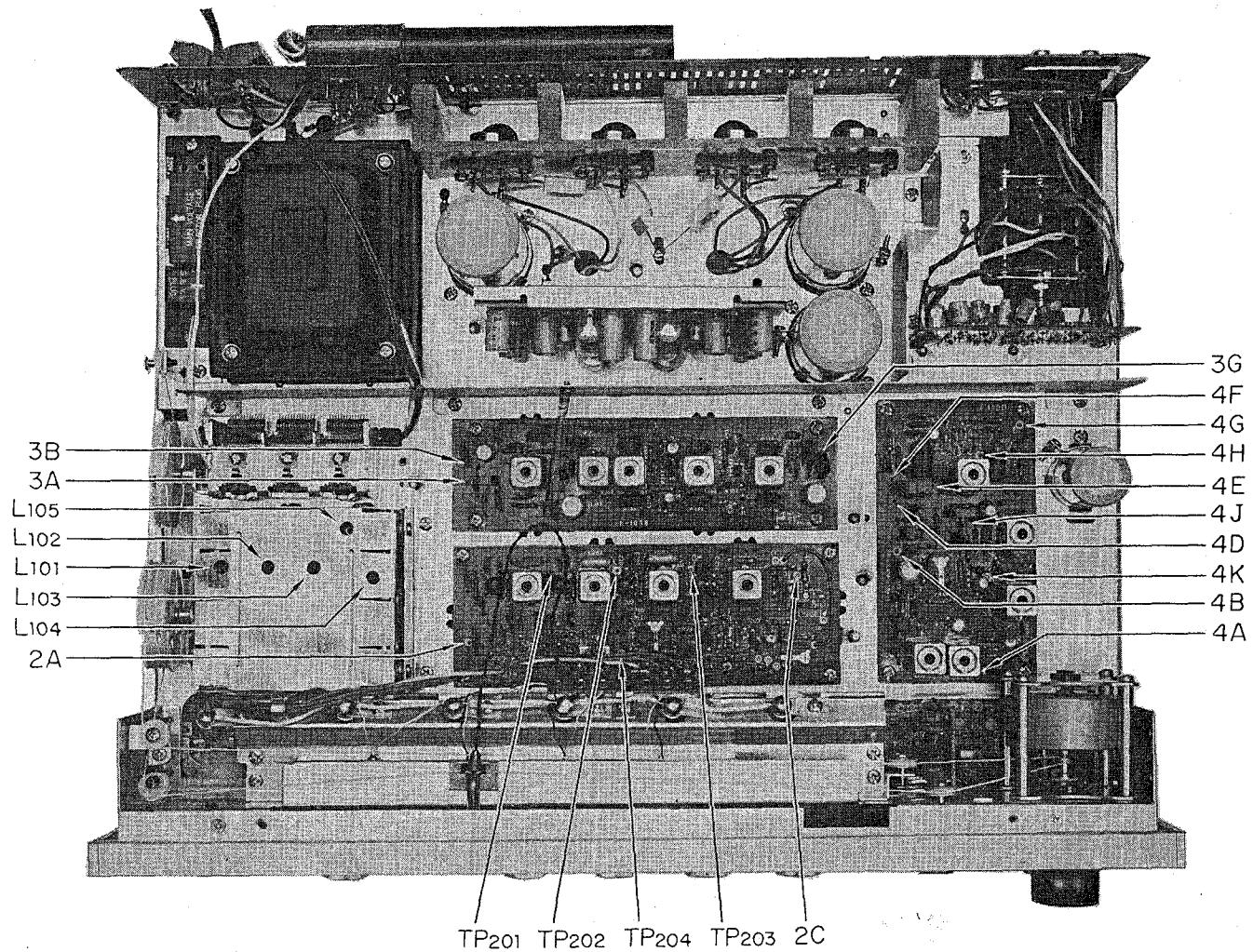
## DIAL MECHANISM

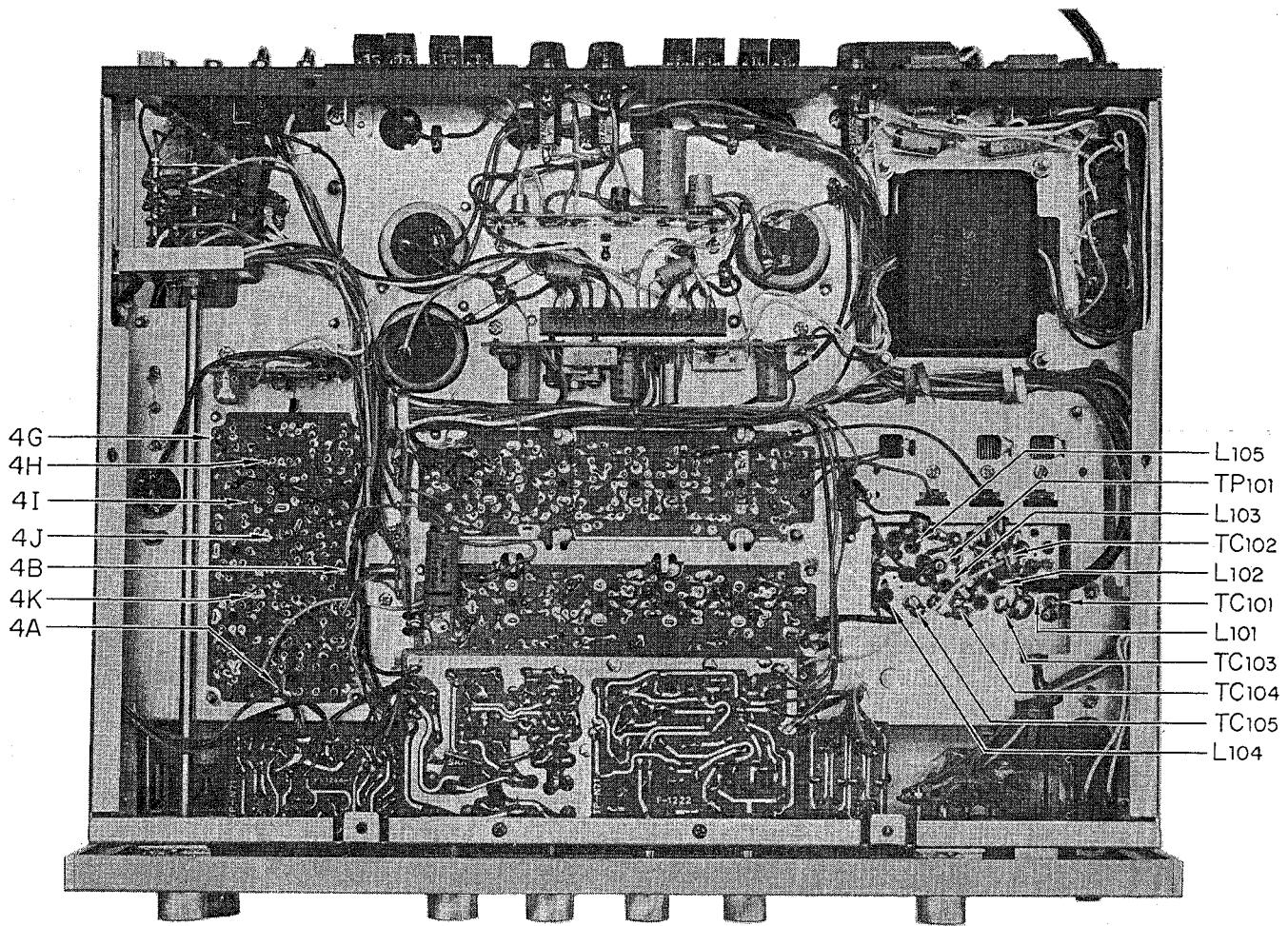


# BLOCK DIAGRAM



## TEST POINTS





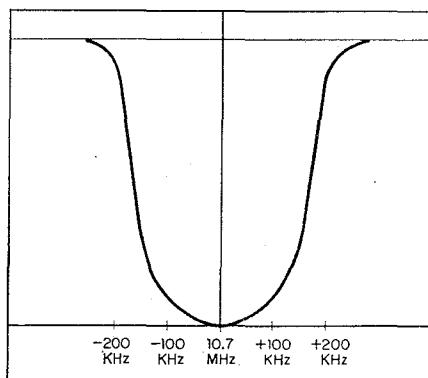
# ALIGNMENT

## FM ALIGNMENT PROCEDURE

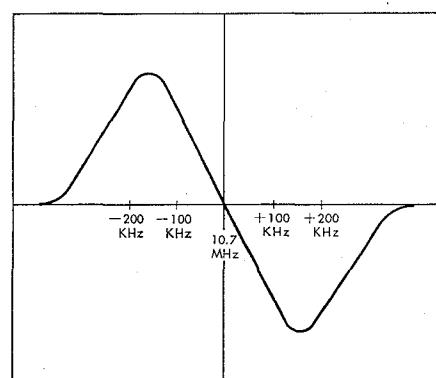
NOTE: To align, set the signal generator level to minimum.  
 Turn tuning gang fully.  
 Center carrier wave.  
 Set pointer at reference mark.

STEP	ALIGN.	GENERATOR	FEED SIGNAL	CONNECT	DIAL SETTING	ADJUST	ADJUST FOR
1.	IF Trans- former	10.7 MHz $\pm 200$ kHz	Sweep signal to TP <sub>101</sub> via the 10pF ceramic capacitor	Oscilloscope to TP <sub>201</sub> , <sub>202</sub> and <sub>203</sub> via the 10pF ceramic capacitor with probe		Top and bottom sides of T <sub>201</sub> , <sub>202</sub> , <sub>203</sub>	Best I.F. wave form
2.	Discrimi- nator	10.7 MHz $\pm 200$ kHz	Sweep signal to TP <sub>101</sub> via the 10pF ceramic capacitor	Oscilloscope to 2C		FM. Discriminator transformer T <sub>204</sub> top and bottom sides	S curve
3.	O.S.C	90 MHz 400 Hz 100% Modulation	To antenna terminals	Oscilloscope and V.T.V.M. to output load	90 MHz	O.S.C. coil L <sub>104</sub>	Maximum
4.	O.S.C	106 MHz 400 Hz 100% Modulation	To antenna terminals	Oscilloscope and V.T.V.M. to output load	106 MHz	O.S.C. trimmer TC <sub>105</sub>	Maximum
5.	Reiterate 3 and 4.						
6.	High- frequency Amp. Circuit	90 MHz 400 Hz 100% Modulation	To antenna terminals	Oscilloscope and V.T.V.M. to output load	90 MHz	Antenna coil L <sub>101</sub> , L <sub>102</sub> and L <sub>103</sub>	Maximum
7.	High- frequency Amp. Circuit	106 MHz 400 Hz 100% Modulation	To antenna terminals	Oscilloscope and V.T.V.M. to output load	106 MHz	Trimmer TC <sub>101</sub> , TC <sub>103</sub> and TC <sub>104</sub>	Maximum
8.	Reiterate 6 and 7.						

FM IF WAVE FORM



FM DISCRIMINATOR WAVE FORM



# FM MULTIPLEX ALIGNMENT PROCEDURE

1. Do not attempt to align the Multiplex Circuit unless the following equipments are available:

a. Multiplex Stereo Generator b. Oscilloscope c. AC. V.T.V.M. d. Audio Oscillator e. FM Signal Generator

STEP	ALIGN.	GENERATOR	FEED SIGNAL TO	TEST EQUIPMENT (S)	ADJUST	ADJUST FOR
1.	67 kHz Trap	67 kHz Audio Signal	TP <sub>4A</sub> or 2C	V.T.V.M. at 4I	L <sub>408</sub>	Minimum
2.	71 kHz Trap	71 kHz Audio Signal	TP <sub>4A</sub> or 2C	V.T.V.M. at 4I	L <sub>404</sub>	Minimum
3.	19 kHz Transformer	FM Signal Gen. Modulated 30% by STEREO Gen. sub-channel	Antenna terminals Tune to signal	V.T.V.M. and Oscilloscope at 4K	T <sub>401</sub>	Maximum
4.	19 kHz Transformer	FM Signal Gen. Modulated 30% by STEREO Gen. sub-channel	Antenna terminals Tune to signal	V.T.V.M. and Oscilloscope at 4J	T <sub>402</sub>	Maximum
5.	38 kHz Transformer	FM Signal Gen. Modulated 30% by STEREO Gen. sub-channel	Antenna terminals Tune to signal	V.T.V.M. and Oscilloscope at 4H	T <sub>403</sub>	Maximum
6.	38 kHz Transformer and Separation VR	FM Signal Gen. Modulated 30% by STEREO Signal Gen, channel-L	Antenna terminals Tune to signal	V.T.V.M. and Oscilloscope at output load, (channel-R)	T <sub>402</sub> or T <sub>403</sub> within $\frac{1}{4}$ turn and Separation VR(VR <sub>601</sub> )	Minimum, (Channel-R)

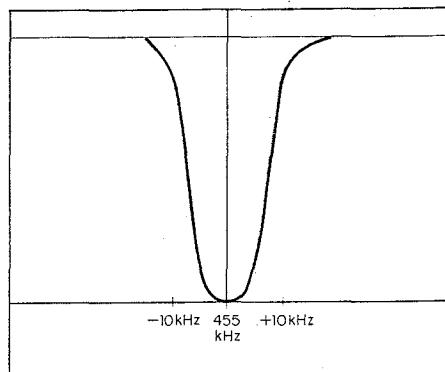
# ALIGNMENT

## AM ALIGNMENT PROCEDURE

NOTE: To align, set the signal generator level to minimum.

STEP	ALIGN.	GENERATOR	FEED SIGNAL TO	TEST EQUIPMENTS	DIAL SETTING	ADJUST	ADJUST FOR
1.	I.F. Transformer	455 kHz ±30 kHz Sweep-generator	Antenna terminals	Oscilloscope and V.T.V.M. at 3G		Top and bottom sides from the 1st I.F.T. ( $T_{303}$ ) to the 3rd I.F.T. ( $T_{305}$ )	Best I.F. wave form
2.	O.S.C.	AM-generator 535 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	535 kHz	O.S.C. Coil $T_{302}$	Maximum
3.	O.S.C.	AM-generator 1600 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	1600 kHz	O.S.C. Trimmer $TC_{303}$	Maximum
4.	Reiterate 2 and 3						
5.	RF amp.	AM-generator 600 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	600 kHz	RF transformer $T_{301}$	Maximum
6.	Antenna circuit	AM-generator 600 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	600 kHz	Ferrite bar Antenna $T_{306}$	Maximum
7.	RF amp.	AM-generator 1400 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	1400 kHz	RF Trimmer $TC_{302}$	Maximum
8.	Antenna circuit	AM-generator 1400 kHz 400 Hz 30% Modulation	Antenna terminals	Oscilloscope and V.T.V.M. at output load	1400 kHz	Antenna circuit Trimmer $TC_{301}$	Maximum
9.	Reiterate 5. 6. 7. 8.						

### AM IF WAVE FORM



## 1. CURRENT ADJUSTMENT

STEP	SETTING OF AMMETER (TESTER)	WHAT TO DO	NOTE
1.		Remove $F_{801}$ and $F_{802}$	
2.		Set $VR_{802}$ and $VR_{804}$ to minimum.	
3.		Set $VR_{702}$ and $VR_{706}$ (VOLUME) to minimum.	
4.		Push the POWER switch ON.	
5.	100mA range.	Connect the ammeter to $F_{801}$ as illustrated in Fig. 1.	Be sure to switch on 1st and then connect the ammeter.
6.		Turn $VR_{804}$ clockwise and adjust current to 15 to 10mA at room temperature of 25°C or less or to 20 to 15mA at 25°C or more.	
7.	100mA range.	Push the POWER switch OFF and attach $F_{801}$ in place.	
8.		Push the POWER switch ON and connect the ammeter to $F_{802}$ as illustrated in Fig. 1.	
9.		Turn $VR_{802}$ clockwise and adjust current to 15 to 10mA at 25°C or less or to 20 to 15mA at 25°C or more.	
10.		Attach $F_{802}$ in place.	

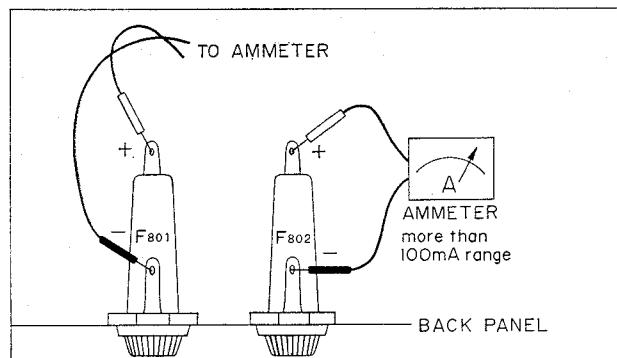


Fig. 1) QUICK-ACTING FUSE HOLDER

## 2. OUTPUT ADJUSTMENT

STEP	WHAT TO DO	NOTE
1.	Adjust the volume control to minimum.	
2.	Set an oscillator to 1,000Hz and connect it to the LEFT AUX input.	The oscillator used should have the oscillation frequency of 20 to 20,000Hz and the output voltage of more than 200mV.
3.	Set the SELECTOR switch to AUX.	Set other controls and switches as follows:  BALANCE to CENTER TAPE MON. to OFF MODE to STEREO TONE to CENTER Others to OFF
4.	Connect a 8- or 16-ohm load resistor having capacitor of more than 50 watts to the LEFT SPEAKER output.	
5.	Connect an oscilloscope to the SPEAKER terminal.	
6.	Push the POWER switch on and advance the volume little by little. Check the output at the terminal by means of the oscilloscope.	
7.	Adjust $VR_{801}$ so that the fronts of sine wave are clipped simultaneously	
8.	Adjust the right channel as above. In Step 7, adjust $VR_{803}$ .	

# PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

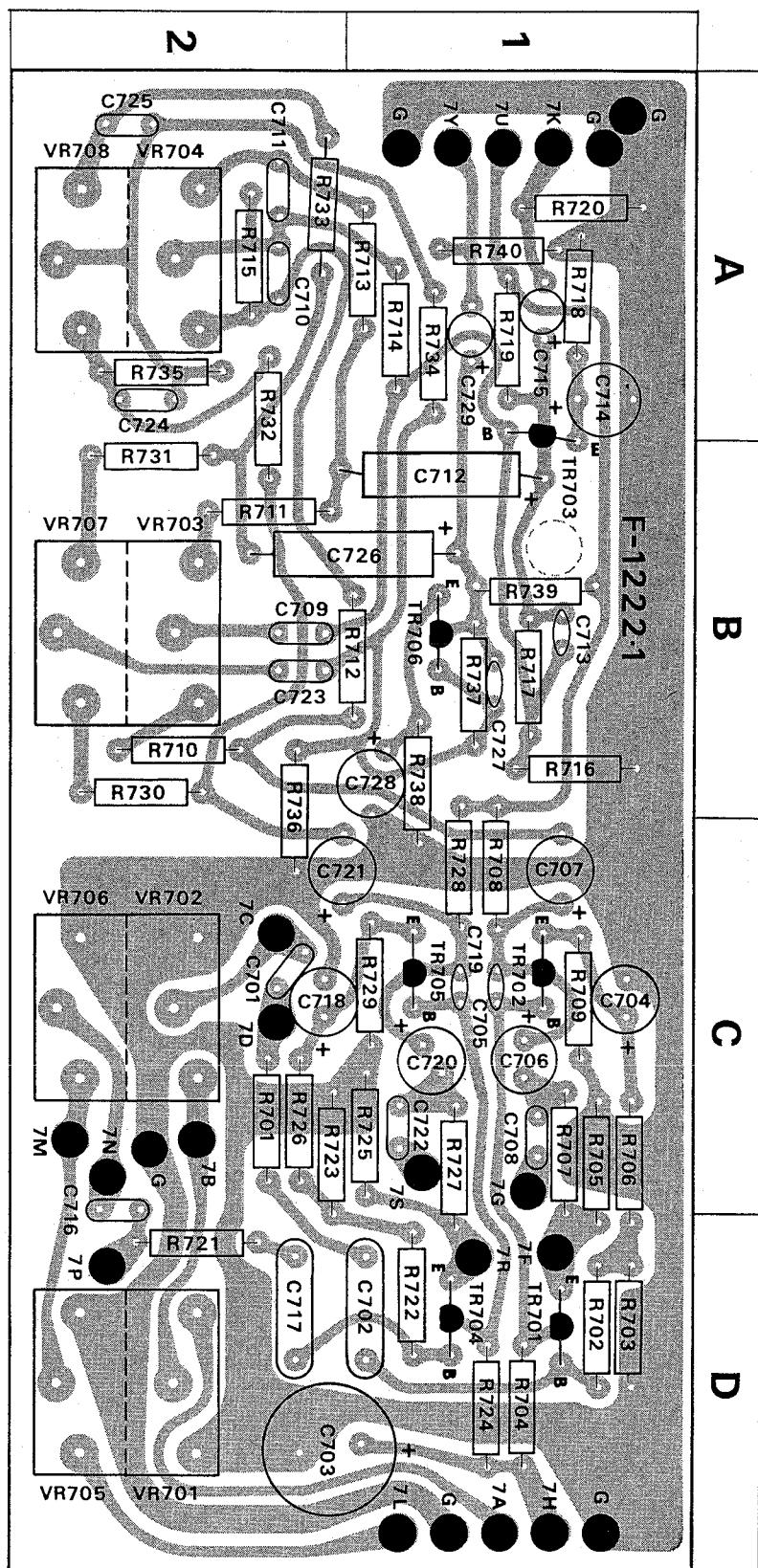
## F-1222-1 < TONE CONTROL BLOCK >

W	X	Y	Z
R701	1kΩ	0101102	2C
R702	47kΩ	0101473	1D
R703	68kΩ	0101683	1D
R704	100kΩ	0101104	1D
R705	1kΩ	0101102	1C, D
R706	270kΩ	0101274	1C, D
R707	3.9kΩ	0101392	1C, D
R708	8.2kΩ	0101822	1C
R709	2.7kΩ	0101272	1C
R710	6.8kΩ	0101682	2B
R711	6.8kΩ	0101682	2B
R712	10kΩ	0101103	1, 2B
R713	10kΩ	0101103	1A
R714	22kΩ	0101223	1A
R715	150kΩ	0101154	2A
R716	150kΩ	0101154	1B
R717	390kΩ	0101394	1B
R718	560Ω	0101561	1A
R719	5.6kΩ	0101562	1A
R720	100kΩ	±10% 1/4W CR.	0101104
R721	1kΩ	0101102	1A
R722	47kΩ	0101473	1D
R723	68kΩ	0101683	2C, D
R724	100kΩ	0101104	1D
R725	1kΩ	0101102	1C
R726	270kΩ	0101274	2C
R727	3.9kΩ	0101392	1C, D
R728	8.2kΩ	0101822	1C
R729	2.7kΩ	0101272	1C
R730	6.8kΩ	0101682	2B
R731	6.8kΩ	0101682	2B
R732	10kΩ	0101103	2A, B
R733	10kΩ	0101103	2A
R734	22kΩ	0101223	1A
R735	150kΩ	0101154	2A
R736	150kΩ	0101154	2B, C
R737	390kΩ	0101394	1B
R738	560Ω	0101561	1B
R739	5.6kΩ	0101562	1B
R740	100kΩ	0101104	1A
C701	0.01μF	±10% 50 V MC.	0601107
C702	0.22μF	±10% 50 V MC.	0601228
C703	220μF	25 V EC.	0513221
C704	33μF	6.3 V EC.	0510330
C705	120pF	±10% 50 V CC.	0660121
C706	33μF	16 V EC.	0512330
C707	1μF	50 V EC.	0515109
C708	0.015μF		0601157
C709	0.0015μF	±10% 50 V MC.	0601156
C710	0.04μF		0601407
C711	0.04μF		0601407
C712	10μF	50 V EC.	0515100
C713	100pF	±10% 50 V CC.	0660101
C714	47μF	6.3 V EC.	0510470
C715	1μF	50 V EC.	0515109
C716	0.01μF	±10% 50 V MC.	0601107

W	X	Y	Z
C717	0.22μF	±10% 50 V MC.	0601228
C718	33μF	6.3 V EC.	0510330
C719	120pF	±10% 50 V CC.	0660121
C720	33μF	16 V EC.	0512330
C721	1μF	50 V EC.	0515109
C722	0.015μF		0601157
C723	0.0015μF	±10% 50 V MC.	0601156
C724	0.04μF		0601408
C725	0.04μF		0601408
C726	10μF	50 V EC.	0515100
C727	100pF	±10% 50 V CC.	0660101
C728	47μF	6.3 V EC.	0510470
C729	1μF	50 V EC.	0515109
VR701	250kΩ M, N Balance Control	1010400	2D
VR705	250kΩ B Volume Control	1010400	2D
VR702	250kΩ B Treble Control	1010200	2C
VR706	100kΩ B Bass Control	1010200	2C
VR703	100kΩ B Bass Control	1020040	2B
VR707	100kΩ B Bass Control	1020040	2B
VR704	100kΩ B Bass Control	1010040	2A
VR708	100kΩ B Bass Control	1010040	2A
TR701	2SC458 LG(C)	0305311	1D
TR702	2SC458 LG(B)	0305310	1C
TR703	2SC458 LG(C)	0305311	1A
TR704	2SC458 LG(C)	0305311	1D
TR705	2SC458 LG(B)	0305310	1C
TR706	2SC458 LG(C)	0305311	1B

### Abbreviations

- CR:** Carbon Resistor
- SR:** Solid Resistor
- CeR:** Cement Resistor
- MC:** Mylar Capacitor
- EC:** Electrolytic Capacitor
- AEC:** Aluminium Electrolytic Capacitor
- MiC:** Mica Capacitor
- OC:** Oil Capacitor
- SC:** Styrol Capacitor
- CC:** Ceramic Capacitor
- TC:** Tantalum Capacitor



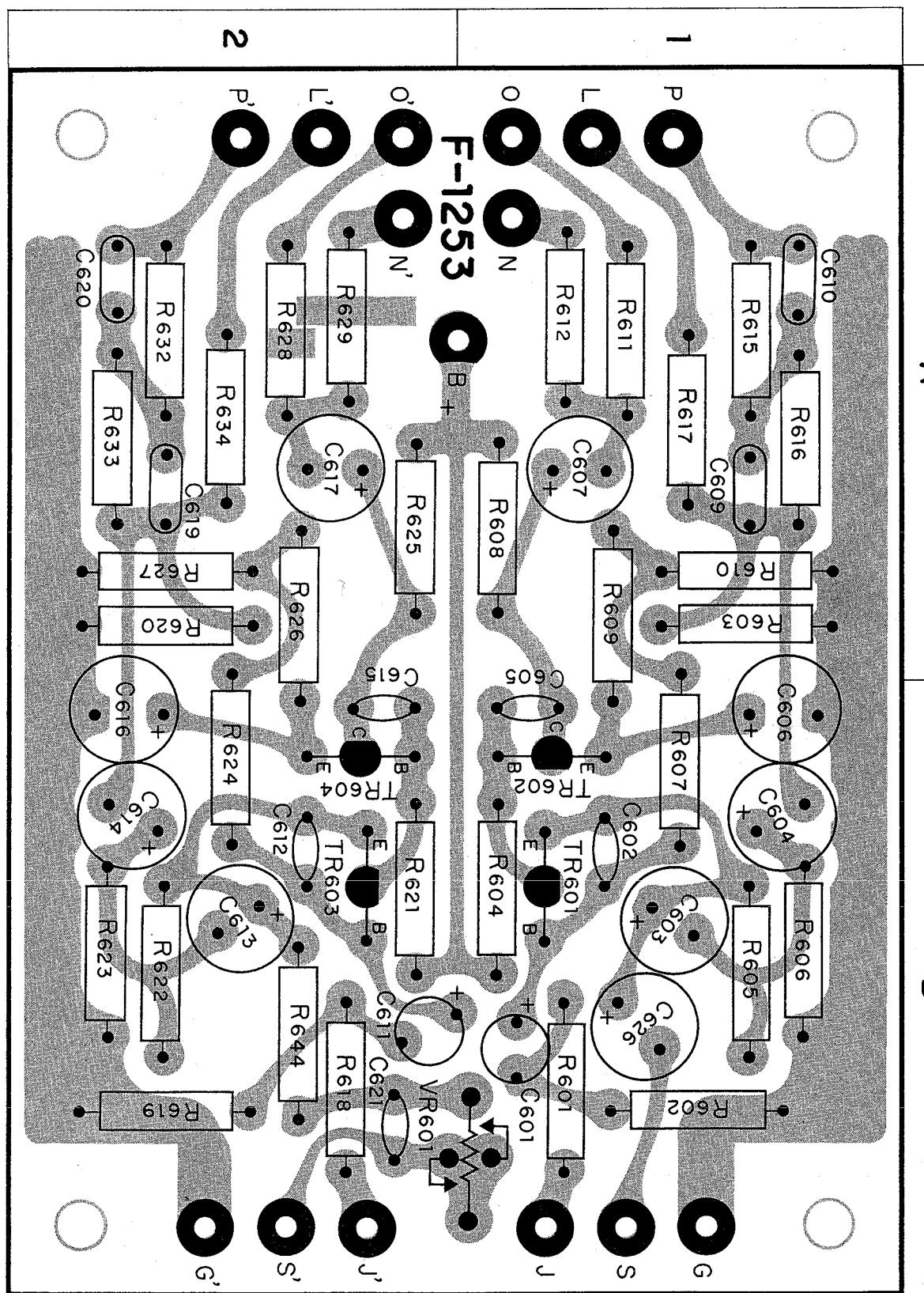
# PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

## F-1253 <EQUALIZER AMP. BLOCK>

W	X	Y	Z	
R601	1kΩ	0101102	1 B	
R602	680kΩ	0101684	1 B	
R603	4.7kΩ	0101472	1 A	
R604	100kΩ	0101104	1 B	
R605	1.8kΩ	0101182	1 B	
R606	470Ω	0101471	1 B	
R607	390kΩ	0101394	1 B	
R608	6.8kΩ	0101682	1 A	
R609	220Ω	0101221	1 A	
R610	680Ω	0101681	1 A	
R611	12kΩ	0101123	1 A	
R612	100Ω	0101101	1 A	
R615	25kΩ	0101253	1 A	
R616	390kΩ	0101394	1 A	
R617	3.9kΩ	0101392	1 A	
R618	1kΩ $\pm 10\%$ $\frac{1}{4}$ W CR.	0101102	2 B	
R619	680kΩ	0101684	2 B	
R620	4.7kΩ	0101472	2 A	
R621	100kΩ	0101104	2 B	
R622	1.8kΩ	0101182	2 B	
R623	470Ω	0101471	2 B	
R624	390kΩ	0101394	2 B	
R625	6.8kΩ	0101682	2 A	
R626	220Ω	0101221	2 A	
R627	680Ω	0101681	2 A	
R628	12kΩ	0101123	2 A	
R629	100Ω	0101101	2 A	
R632	25kΩ	0101253	2 A	
R633	390kΩ	0101394	2 A	
R634	3.9kΩ	0101392	2 A	
R644	100Ω	0101101	2 B	
C601	1.5μF	16 V TC.	0572159	1 B
C602	150pF	$\pm 10\%$ 50 V CC.	0660151	1 B
C603	33μF	6.3 V EC.	0510330	1 B
C604	33μF	6.3 V EC.	0510330	1 B
C605	150pF	$\pm 10\%$ 50 V CC.	0660151	1 B
C606	47μF	6.3 V EC.	0510470	1 B
C607	10μF	25 V EC.	0513100	1 A
C609	0.01μF	$\pm 10\%$ 50 V MC.	0601107	1 A
C610	0.003μF	$\pm 10\%$ 50 V MC.	0601306	1 A
C611	1.5μF	16 V TC.	0572159	2 B
C612	150pF	$\pm 10\%$ 50 V CC.	0660151	2 B
C613	33μF	6.3 V EC.	0510330	2 B
C614	33μF	6.3 V EC.	0510330	2 B
C615	150pF	$\pm 10\%$ 50 V CC.	0660151	2 B
C616	47μF	6.3 V EC.	0510470	2 B
C617	10μF	25 V EC.	0513100	2 B
C619	0.01μF	$\pm 10\%$ 50 V MC.	0601107	2 A
C620	0.003μF	$\pm 10\%$ 50 V MC.	0601306	2 A
C621	0.002μF	$+\frac{80}{-20}\%$ 25 V CC.	0659002	2 B
C626	100μF	6.3 V EC.	0510101	1 B
VR601	3kΩB	Separation Adjustor	1030660	1, 2 B

W	X	Y	Z
TR601		0305474, 5	1 B
TR602		0305474, 5	1 B
TR603	2SC871 R(E,F)	0305474, 5	2 B
TR604		0305474, 5	2 B

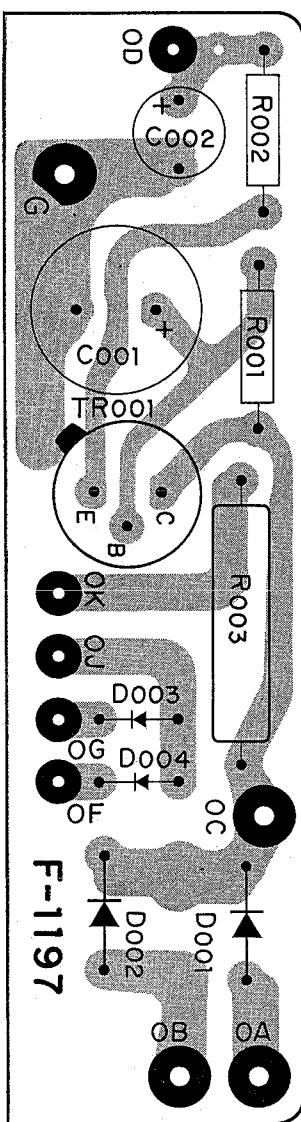


# PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

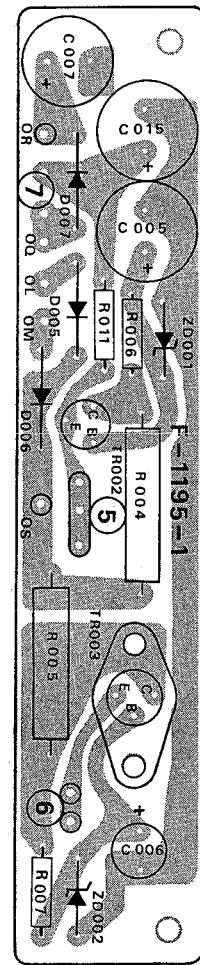
## F-1197 <RECTIFIER BLOCK>

W	X	Y	Z
R001	12k $\Omega$	0111123	
R002	6.8 $\Omega$	0111689	
C001	200 $\mu$ F 75V EC.	0519301	
C002	4.7 $\mu$ F 160V EC.	0518479	
D001	SA-2Z	0310420	
D002		0310420	
TR001	2SC627 (1, 2, 3)	0305580, 1, 2	



## F-1195-1 <RIPPLE FILTER BLOCK>

W	X	Y	Z
R004	68 $\Omega$	0153680	
R005	180 $\Omega$	0153181	
R006	3.9k $\Omega$	0101392	
R007	1.5k $\Omega$	0101152	
R011	220 $\Omega$	0101221	
C005	220 $\mu$ F 25 V EC.	0513221	
C006	330 $\mu$ F 16 V EC.	0512331	
C007	330 $\mu$ F 10 V EC.	0511331	
C015	220 $\mu$ F 25 V EC.	0513221	
D005	10D-2	0310350	
D006	10D-1	0310350	
D007		0310340	
ZD001	ZB-1-25 Zener Diode	0310710	
ZD002	ZB-1-14 Zener Diode	0310691	
TR002	2SC971	0305531	
TR003	2SD205	0308130	



F-1224 <NOISE CANCELER AND  
MUTING BLOCK>

W	X	Y	Z
R433	3.3MΩ ±10% ½W SR.	0111335	
C430	330pF ±10% 50 V MiC.	0641331	
S6, S7		1130131	

## F-1223 <HIGH-LOW FILTER BLOCK>

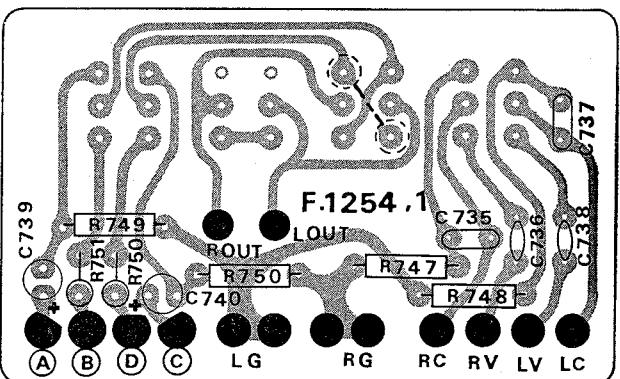
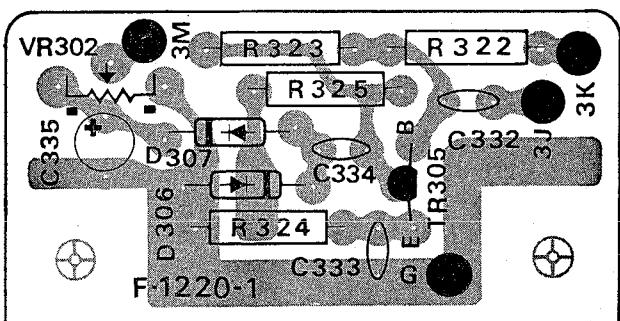
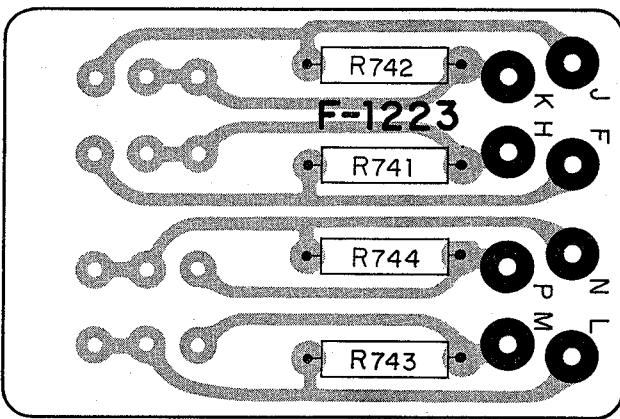
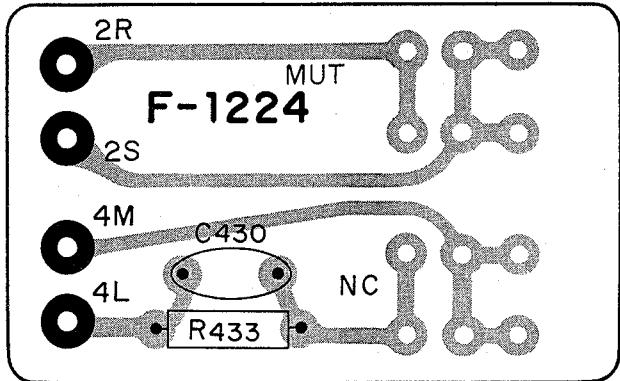
W	X	Y	Z
R741	1M $\Omega$	0101105	
R742	1M $\Omega$	0101105	
R743	1M $\Omega$	0101105	
R744	1M $\Omega$	0101105	
S8, S9	$\pm 10\% \frac{1}{4}W$ CR.		1130070

F-1220-1 <AM METER BLOCK>

W	X	Y	Z
R322	68k $\Omega$	0101683	
R323	560k $\Omega$	0101564	
R324	2.2k $\Omega$	0101222	
R325	12k $\Omega$	0101123	
C332	0.01 $\mu$ F	0659004	
C333	0.001 $\mu$ F	0659001	
C334	0.01 $\mu$ F	0659004	
C335	4.7 $\mu$ F	0513479	
VR302	50k $\Omega$ B AM Meter Adjustor	1030490	
D306	IN60	0310330	
D307		0310330	
TR305	2SC460(C)	0305350	

## F-1254,1 <ACCESSORIES BLOCK>

W	X	Y	Z
R747	27k $\Omega$	0101273	
R748	27k $\Omega$	0101273	
R749	100k $\Omega$	0101104	
R750	100k $\Omega$	0101104	
R751	12k $\Omega$	0101123	
R752	12k $\Omega$	0101123	
C735	0.02 $\mu$ F	±10% 50 V MC.	0601207
C736	150 pF	±10% 50 V MiC.	0641151
C737	0.02 $\mu$ F	±10% 50 V MC.	0601207
C738	150 pF	±10% 50 V MiC.	0641151
C739	0.47 $\mu$ F	±20% 25 V AEC.	0563478
C740	0.47 $\mu$ F		0563478
S <sub>2,3,4,5</sub>			1130140



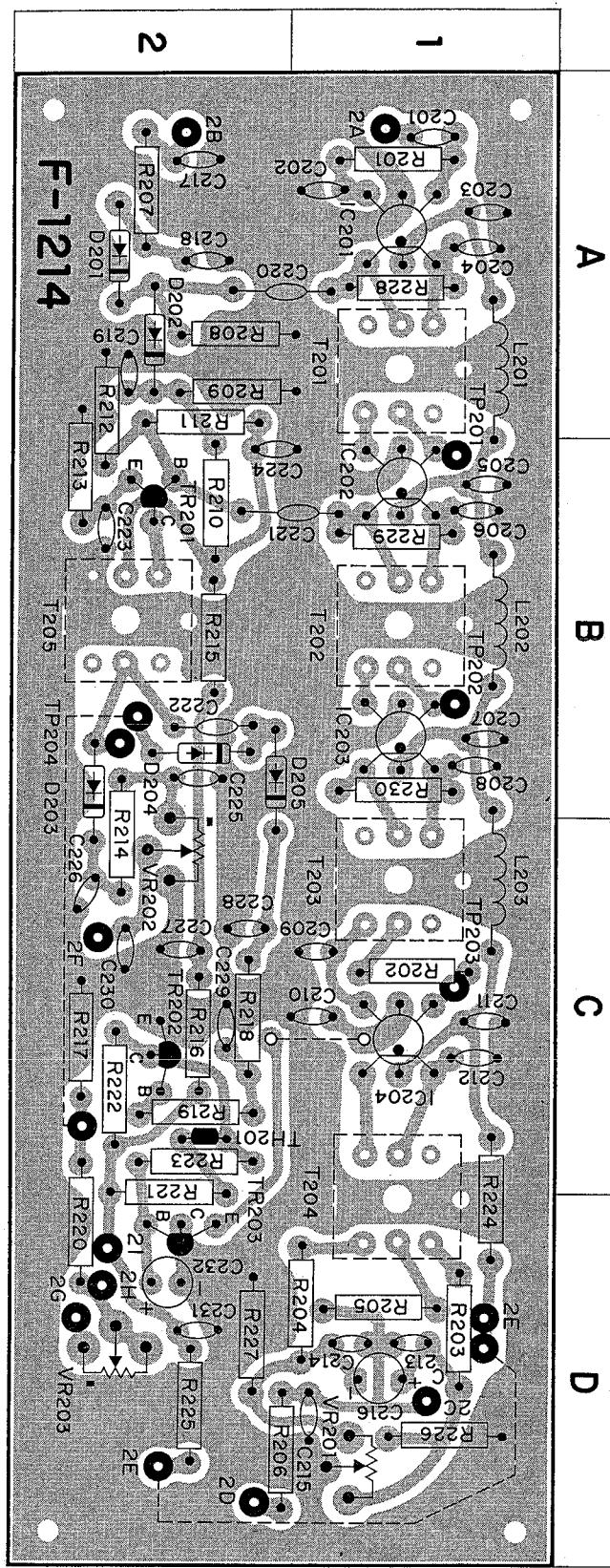
# PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

## F-1214-1 <FM IF BLOCK>

W	X	Y	Z
R201	1.5kΩ	0101152	1 A
R202	68Ω	0101680	1 C
R203	1kΩ	0101102	1 D
R204	1kΩ	0101102	1 D
R205	56Ω	0101560	1 D
R206	22kΩ	0101223	2 D
R207	100kΩ	0101104	2 A
R208	220kΩ	0101224	2 A
R209	680Ω	0101681	2 A
R210	68kΩ	0101683	2 B
R211	22kΩ	0101223	2 A
R212	10kΩ	0101103	2 A
R213	1kΩ	0101102	2 B
R214	2.2kΩ	0101222	2 C
R215	22Ω	0101220	2 B
R216	22Ω	0101220	2 C
R217	10kΩ	0101103	2 C
R218	1kΩ	0101102	2 C
R219	68kΩ	0101683	2 C
R220	100kΩ	0101104	2 D
R222	18kΩ	0101183	2 D
R223	2.7kΩ	0101272	2 C
R224	56Ω	0101560	2 C
R225	820Ω	0101821	2 D
R226	10kΩ	0101103	1 D
R227	10kΩ	0101103	2 D
R228	15kΩ	0101153	1 A
R229	15kΩ	0101153	1 B
R230	15kΩ	0101153	2 B
C201	0.01μF	0659004	1 A
C202	0.02μF	0659005	1 A
C203	0.02μF	0659005	1 A
C204	0.02μF	0659005	1 A
C205	0.02μF	0659005	1 B
C206	0.02μF	0659005	1 B
C207	0.02μF	0659005	1 B
C208	0.02μF	0659005	1 B
C209	0.02μF	0659005	1 C
C210	0.02μF	0659005	1 C
C211	0.02μF	0659005	1 C
C212	0.02μF	0659005	1 C
C213	220pF	0660221	1 D
C214	220pF	0660221	1 D
C215	47pF	0660470	1 D
C216	10μF	0511100	1 D
C217	0.05μF	0659007	2 A
C218	0.02μF	0659005	2 A
C219	0.02μF	0659005	2 A
C220	3.3pF	0660339	2 A
C221	3.3pF	0660339	2 A
C222	3.3pF	0660339	2 B
C223	0.02μF	0659005	2 B

W	X	Y	Z
C224	0.02μF	0659005	2 B
C225	0.02μF	0659005	2 B
C226	0.02μF	0659005	2 C
C227	0.02μF	0659005	2 C
C228	330pF	0660331	2 C
C229	330pF	0660331	2 C
C230	0.05μF	0659007	2 C
C231	0.02μF	0659005	2 D
C232	1μF	0515109	2 D
VR202	50kΩB Tuning Meter Adjustor	1030200	2 C
VR203	100kΩB Muting Adjustor	1030340	2 D
T201		4235470	1 A
T202		4235480	1 B
T203		4235490	1 C
T204	FM Detector 10.7MHz	4235180	1 D
T205	FM Meter Transformer	4235290	2 B
L201		4290011	1 A
L202		4290011	1 B
L203		4290011	1 C
IC201		0360030	1 A
IC202		0360030	1 B
IC203	PA-7703E	0360030	1 B
IC204		0360030	1 C
TR201	2SC 380 (O) or 2SC460 (B,C)	0305330	2 B
TR202	2SC 828 (T)	0305270	2 C
TR203	2SA 564 (P,Q)	0300090, 1	2 D
D201		0310330	2 A
D202		0310330	2 A
D203		0310330	2 B
D204	IN60	0310330	2 B
D205		0310330	2 B



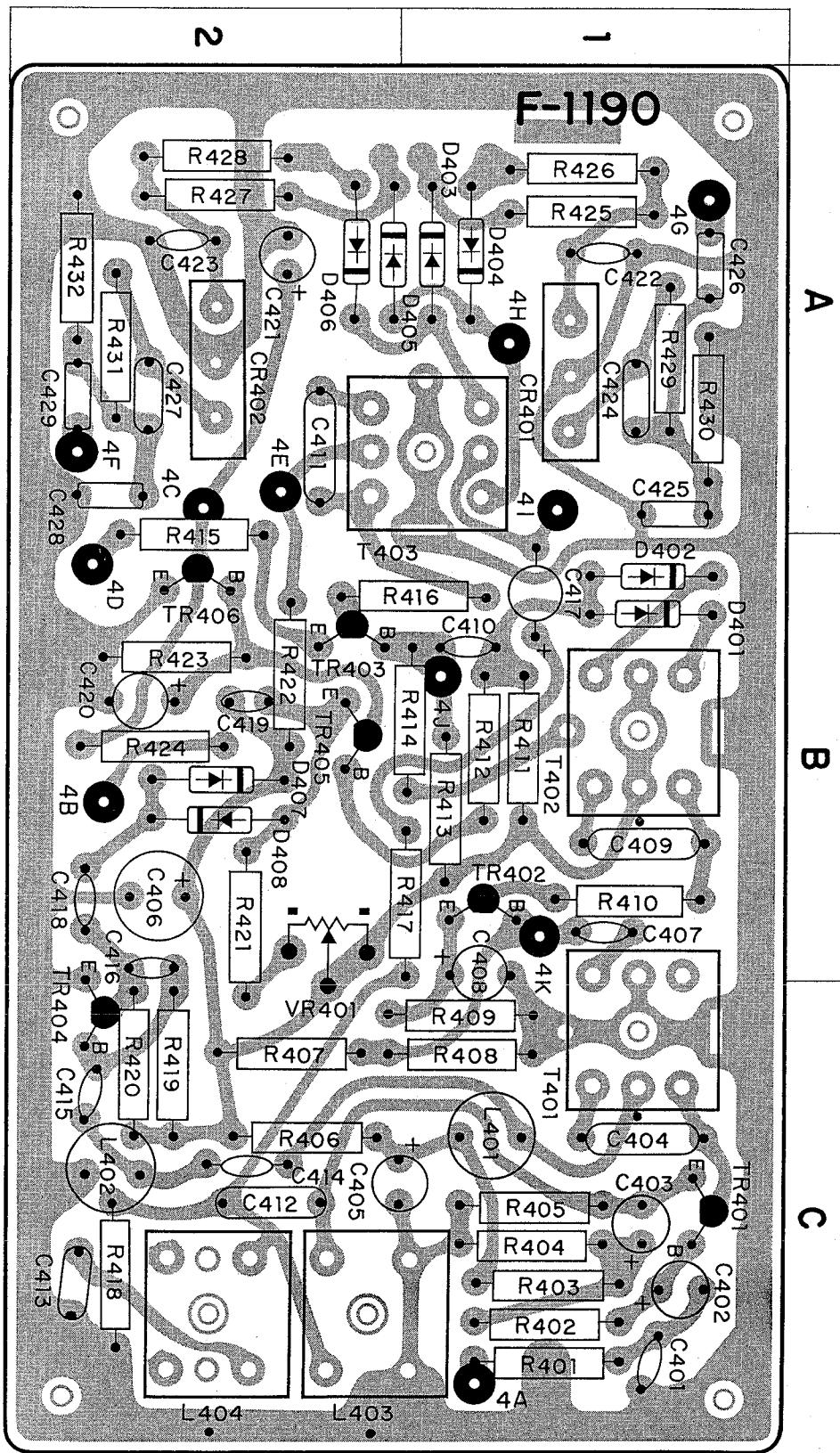
# PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

## F-1190 <MULTIPLEX BLOCK>

W	X	Y	Z
R401	1kΩ	0101102	1C
R402	100kΩ	0101104	1C
R403	100kΩ	0101104	1C
R404	22kΩ	0101223	1C
R405	680Ω	0101681	1C
R406	100Ω	0101101	2C
R407	47kΩ	0101473	2C
R408	22kΩ	0101223	1C
R409	2.2kΩ	0101222	1C
R410	1kΩ	0101102	1B
R411	10kΩ	0101103	1B
R412	10kΩ	0101103	1B
R413	100kΩ	0101104	1B
R414	18kΩ	0101183	1B
R415	5.6kΩ	0101562	2A
R416	470Ω	0101471	1B
R417	2.2kΩ	0101222	1B
R418	10kΩ	0101103	2C
R419	1.2MΩ	010125	2C
R420	4.7kΩ	0101472	2C
R421	3.3kΩ	0101332	2B
R422	47Ω	0101470	2B
R423	1.8kΩ	0101182	2B
R424	6.8kΩ	0101682	2B
R425	22kΩ	0101223	1A
R426	22kΩ	0101223	1A
R427	22kΩ	0101223	2A
R428	22kΩ	0101223	2A
R429	100kΩ	0101104	1A
R430	220kΩ	0101224	1A
R431	100kΩ	0101104	2A
R432	220kΩ	0101224	2A
C401	100pF ± 10% 50 V CC.	0660101	1C
C402	1μF 50 V EC.	0515109	1C
C403	33μF 6.3 V EC.	0510330	1C
C404	5000pF ± 5% 50 V SC.	0620502	1C
C405	10μF 25 V EC.	0513100	1C
C406	47μF	0513470	2B
C407	0.02μF ± 10% 50 V MC.	0601207	1B
C408	1μF 50 V EC.	0515109	1B
C409	6800pF ± 5% 50 V SC.	0620682	1B
C410	0.02μF ± 10% 50 V MC.	0601207	1B
C411	1700pF	0620172	2A
C412	1500pF ± 5% 50 V SC.	0620152	2D
C413	220pF	0620221	2C
C414	330pF	0660331	2C
C415	330pF ± 10% 50 V CC.	0660331	2C
C416	47pF	0660470	2B
C417	10μF 25 V EC.	0513100	1B
C418	0.02μF +80% 25 V CC.	0659005	2B
C419	0.02μF -20%	0659005	2B
C420	3.3μF 25 V EC.	0513339	2B
C421	10μF 10 V EC.	0511100	2A
C422	220pF ± 10% 50 V CC.	0660221	1A
C423	220pF ± 5% 50 V SC.	0660221	2A
C424	560pF ± 5% 50 V SC.	0620561	1A

W	X	Y	Z
C425	1000pF ± 5% 50 V SC.	0620102	1A
C426	0.03μF ± 10% 50 V MC.	0601307	1A
C427	560pF	0620561	2A
C428	1000pF ± 5% 50 V SC.	0620102	2A
C429	0.03μF ± 10% 50 V MC.	0601307	2A
CR401	FP-38A	0800080	1A
CR402		0800080	2A
T401	19kHz	4240280	1C
T402		4240290	1B
T403		4240290	1A
L401	4.7mH	4900030	1C
L402		4900030	2C
L403		4240260	2C
L404		4240270	2C
D401	IN34A	0310400	1B
D402		0310400	1B
D403	IN34A	0310401	1A
D404		0310401	1A
D405		0310401	2A
D406	IN34A	0310401	2A
D407		0310400	2B
D408		0310400	2B
TR401	2SC458LG (B, C)	0305310	1C
TR402	2SC536V <sub>1</sub> (E <sub>1</sub> , E <sub>2</sub> )	0305244, 5	1B
TR403		0305244, 5	2B
TR404		0305244, 5	2C
TR405	2SA564 (P, Q)	0300090, 1	2B
TR406	2SC536V <sub>1</sub> (E <sub>1</sub> , E <sub>2</sub> )	0305244, 5	2B



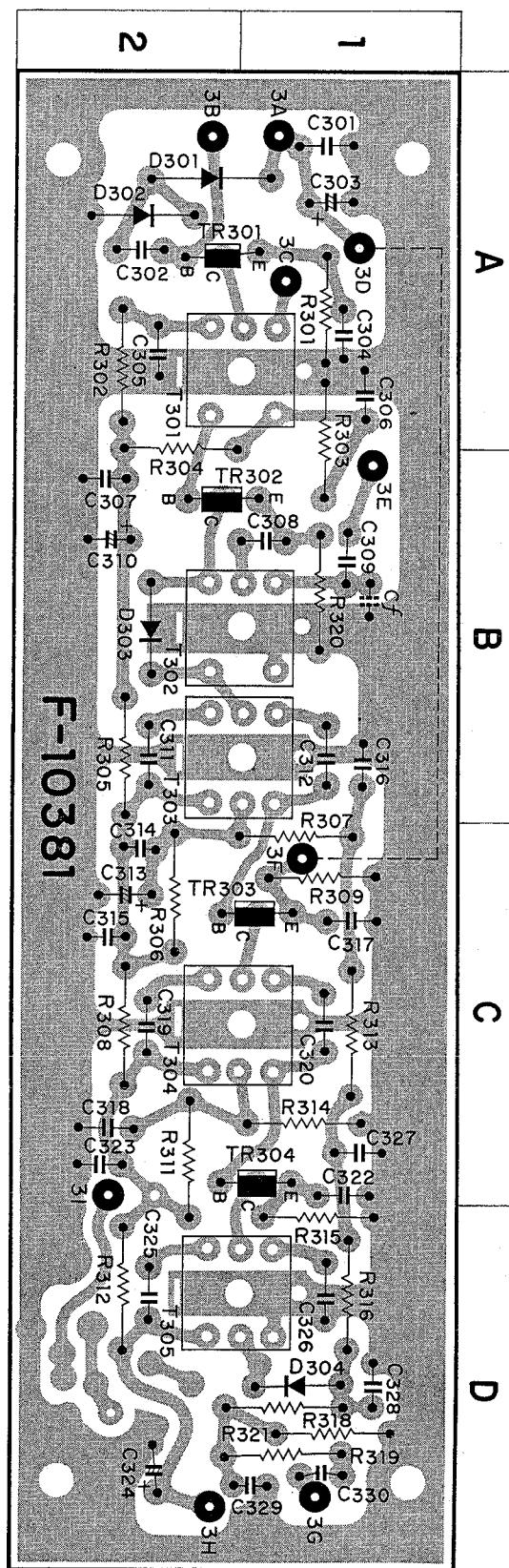
# PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

## F-10381 <AM IF BLOCK>

W	X	Y	Z
R301	1kΩ	0101102	1 A
R302	100Ω	0101101	2 A
R303	3.9kΩ	0101392	1 A
R304	33kΩ	0101333	2 B
R305	100Ω	0101101	2 B
R306	56kΩ	0101563	2 C
R307	22Ω	0101220	1 B
R308	22Ω	0101220	2 C
R309	1kΩ	0101102	1 C
R311	10kΩ	±10% 1/4W CR.	0101103
R312	22Ω	0101220	2 D
R313	100Ω	0101101	1 C
R314	6.8kΩ	0101682	1 C
R315	470Ω	0101471	1 C
R316	8.2kΩ	0101822	1 D
R318	1kΩ	0101102	1 D
R319	120kΩ	0101124	1 D
R320	1kΩ	0101102	1 B
R321	4.7kΩ	0101472	1 D
C301	0.04μF	+80% -20% 25 V CC.	0659006
C302	0.04μF	-20%	0659006
C303	100μF	6.3 V EC.	0510101
C304	0.02μF		0659005
C305	0.04μF	+80%	0659006
C306	0.04μF	-20% 25 V CC.	0659006
C307	0.02μF		0659005
C308	0.01μF	±5% 50 V MC.	0600107
C309	430pF	±5% 50 V MiC.	0640431
C310	100μF	16 V EC.	0512101
C311	500pF	±5% 50 V MiC.	0640501
C312	500pF	±5% 50 V MC.	0640501
C313	4.7μF	16 V EC.	0512479
C314	0.02μF		0659005
C315	0.02μF	+80% -20% 25 V CC.	0659005
C316	0.04μF		0659006
C317	47μF	6.3 V EC.	0510470
C318	0.02μF	+80% -20% 25 V CC.	0659005
C319	500pF	±5% 50 V MiC.	0640501
C320	500pF	±5% 50 V MC.	0640501
C322	0.04μF	+80%	0659006
C323	0.02μF	-20% 25 V CC.	0659005
C324	220μF	16 V EC.	0512221
C325	500pF	±5% 50 V MiC.	0640501
C326	500pF	±5% 50 V MC.	0640501
C327	0.02μF	+80% -20% 25 V CC.	0659005
C328	0.02μF	±5% 50 V MC.	0600207
C329	0.1μF	±5% 50 V MC.	0600108
C330	0.04μF	+80% -20% 25 V CC.	0659006
T301	AM RF	4210050	1, 2 A
T302	AM OSC	4220070	1, 2 B
T303	AM IFT 455kHz	4230190	1, 2 B
T304	AM IFT 455kHz	4230190	1, 2 C
T305		4230180	1, 2 D

W	X	Y	Z
TR301	2SC460(C)	0305351	2 A
TR302	2SC460(B)	0305350	2 B
TR303	2SC460(C)	0305350	1, 2 C
TR304	2SC460(C)	0305351	1 D
D301		0310330	2 A
D302	IN60	0310330	2 A
D303		0310330	2 B
D304		0310330	1 D



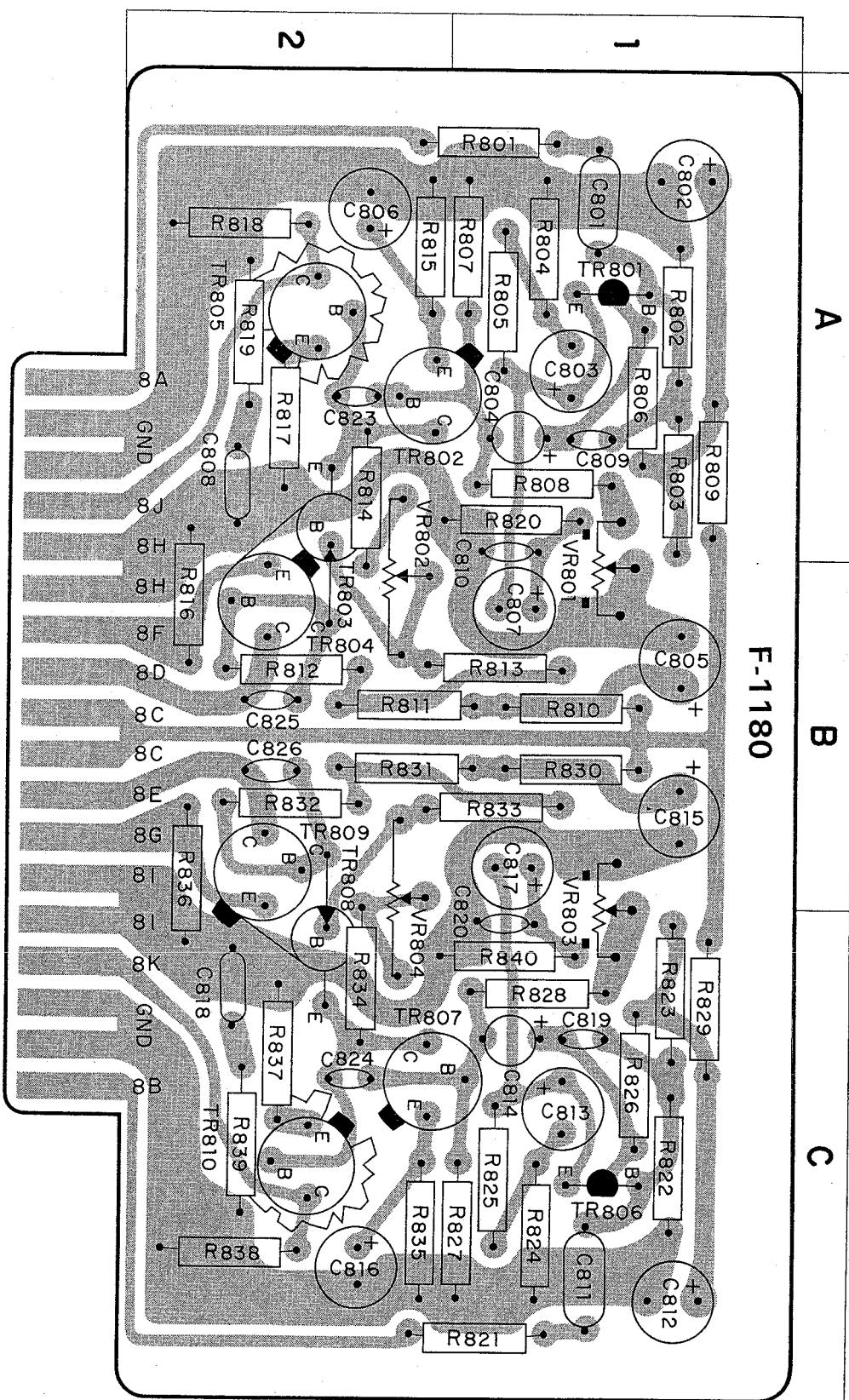
# PRINTED CIRCUIT BOARDS AND PARTS LIST

W: Parts No. X: Parts Name Y: Stock No. Z: Position of Parts

## F-1180 <DRIVER AMP. BROCK>

W	X	Y	Z
R801	2.2kΩ	0101222	1 A
R802	150kΩ	0101154	1 A
R803	560kΩ	0101564	1 A
R804	220Ω	0101221	1 A
R805	3.3kΩ	0101332	1 A
R806	3.3kΩ	0101332	1 A
R807	10kΩ	0101103	1 A
R808	47kΩ	0101473	1 A
R809	56kΩ	0101563	1 A
R810	1.8kΩ	0101182	1 B
R811	3.9kΩ	0101392	2 B
R812	39Ω	0101390	2 B
R813	3.3kΩ	0101332	1 B
R814	1.5kΩ	0101152	2 A
R815	220Ω	0101221	2 A
R816	100Ω	0101101	2 B
R817	4.7Ω	0101479	2 A
R818	100Ω	0101101	2 A
R819	10Ω	0111100	2 A
R820	8.2kΩ	0101822	1 A
R821	2.2kΩ	0101222	1 C
R822	150kΩ	0101154	1 C
R823	560kΩ	0101564	1 C
R824	220Ω	0101221	1 C
R825	3.3kΩ	0101332	1 C
R826	3.3kΩ	0101332	1 C
R827	10kΩ	0101103	1 C
R828	47kΩ	0101473	1 C
R829	56kΩ	0101563	1 C
R830	1.8kΩ	0101182	1 B
R831	3.9kΩ	0101392	2 B
R832	39Ω	0101390	2 B
R833	3.3kΩ	0101332	1 B
R834	1.5kΩ	0101152	2 C
R835	220Ω	0101221	2 C
R836	100Ω	0101101	2 B
R837	4.7Ω	0101479	2 C
R838	100Ω	0101101	2 C
R839	10Ω	0111100	2 C
R840	8.2kΩ	0101822	1 C
C801	0.22μF	0601228	1 A
C802	100μF	0513101	1 A
C803	220μF	0511221	1 A
C804	1μF	0515109	1 A
C805	33μF	0515330	1 B
C806	100μF	0511101	2 A
C807	10μF	0515100	1 B
C808	0.047μF	0601477	2 A
C809	47pF	0660470	1 A
C810	0.22μF	0601228	1 C
C811	100μF	0513101	1 C
C812	220μF	0511221	1 C
C813	1μF	0515109	1 C
C814	33μF	0515330	1 B
C815	100μF	0511101	2 C

W	X	Y	Z
C817	10μF	50 V EC.	0515100 1 B
C818	0.047μF	±10% 50 V MC.	0601477 2 C
C819	47 pF		0660470 1 C
C820	47 pF		0660470 2 A
C821	47 pF	±10% 50 V CC.	0660470 2 C
C822	330 pF		0660331 2 B
C823	330 pF		0660331 2 B
VR801	200kΩB AC Balance Adjustor	1030150	1 A, B
VR802	1kΩB DC Bias Adjustor	1030510	2 A, B
VR803	200kΩB AC Balance Adjustor	1030150	1 B, C
VR804	1kΩB DC Bias Adjustor	1030510	2 B, C
TR801	2SC458LG (C)	0305311	1 A
TR802	2SC627 (1, 2)	0305581, 2	2 A
TR803	2SC281 (B)	0305121	2 A, B
TR804	2SC708 (A, B, C)	0305480, 1, 2	2 B
TR805	2SA537 (A, B, C)	0300120, 1, 2	2 A
TR806	2SC458LG (C)	0305311	1 C
TR807	2SC627 (1, 2)	0305581, 2	2 C
TR808	2SC281 (B)	0305121	2 B, C
TR809	2SC708 (A, B, C)	0305480, 1, 2	2 B
TR810	2SA537 (A, B, C)	0300120, 1, 2	2 C



# OTHER PARTS AND THEIR POSITION ON CHASSIS

W: Parts No. X: Parts Name Y: Stock No.

W	X	Y
R008	1.2kΩ ±10% ½W SR.	0111122
R009	150Ω	0101151
R010	10Ω	0101100
R012	39Ω	0101390
R017	220Ω	0101221
R120	56Ω	0101560
R121	680Ω	0101681
R635	68kΩ	0101683
R636	180kΩ	0101184
R637	100kΩ	0101104
R638	22kΩ ±10% ¼W CR.	0101223
R639	15kΩ	0101153
R640	100kΩ	0101104
R641	220kΩ	0101224
R642	100kΩ	0101104
R643	220kΩ	0101224
R645	68kΩ	0101683
R646	180kΩ	0101184
R647	100kΩ	0101104
R648	15kΩ	0101153
R841	0.5Ω ±10% 2W CeR.	0152508
R842	0.5Ω	0152508
R843	330Ω ±10% ½W SR.	0111331
R844	0.5Ω	0152508
R845	0.5Ω	0152508
R846	330Ω ±10% ½W SR.	0111331
R847	560Ω ±10% 1W CeR.	0151561
R848	560Ω	0151561
C003	2200μF 80V EC.	0559821
C004	1000μF 50V EC.	0515102
C008	0.033μF	0591337
C009	0.0047μF	0591476
C011	0.04μF +80%	0659006
C012	0.04μF -20%	0659006
C013	0.01μF	0590107
C014	0.01μF	0590107
C017	220μF 25V EC.	0503221
C345	1μF 50V EC.	0515109
C439	0.02μF +100% -0% 50V CC.	0650203
C622	100pF	0660101
C623	100pF ±10% 50V CC.	0660101
C624	100pF	0660101
C625	100pF	0660101
C821	2200μF 75V EC.	0559703
C822	2200μF	0559703
VR204	1MΩB Muting Adjustor	1005080
S001	UEH 12CD00	1130160
S1(g~i)	Y-4-9-6	1104120
S10	Y-1-4-4	1101180
S11	SL-13-8-10H6-2-2	1110040
J001	Headphones Jack	2430070
J002	DIN Connector	2430040
TR407	2SB324	0303110
TR811~814	2SD202 or 2SC793	0308200, 1

\* Manufacturer reserves right to change design and/or specifications without notice for purpose of improvement.

